

## Supporting Information for

### Preparation of MIL-53(Fe)-Reduced Graphene Oxide Nanocomposites by a Simple Self-Assembly Strategy for Increasing Interfacial Contact: Efficient Visible Light Photocatalysts

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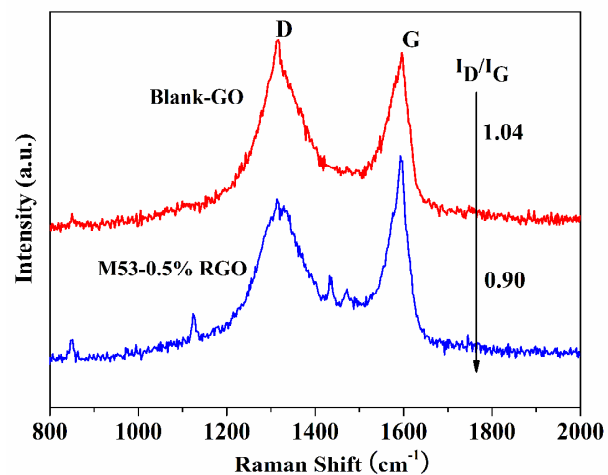
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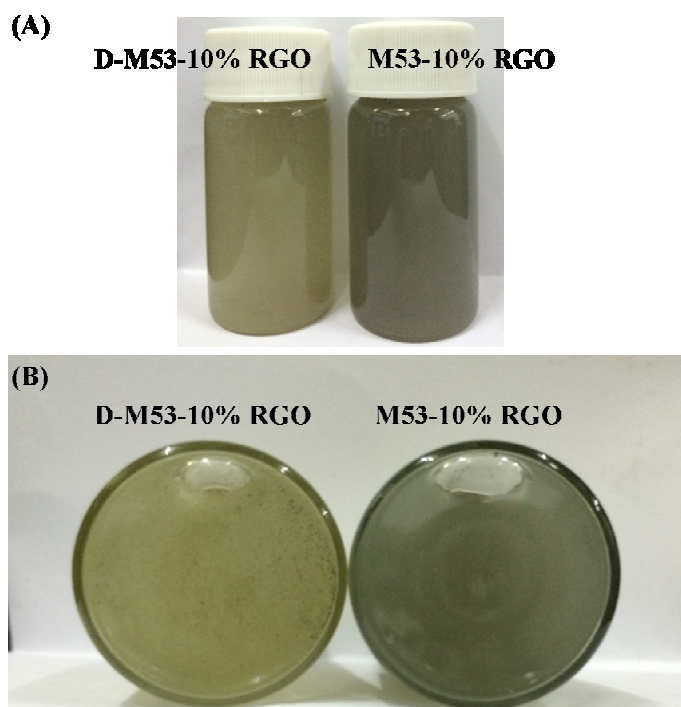
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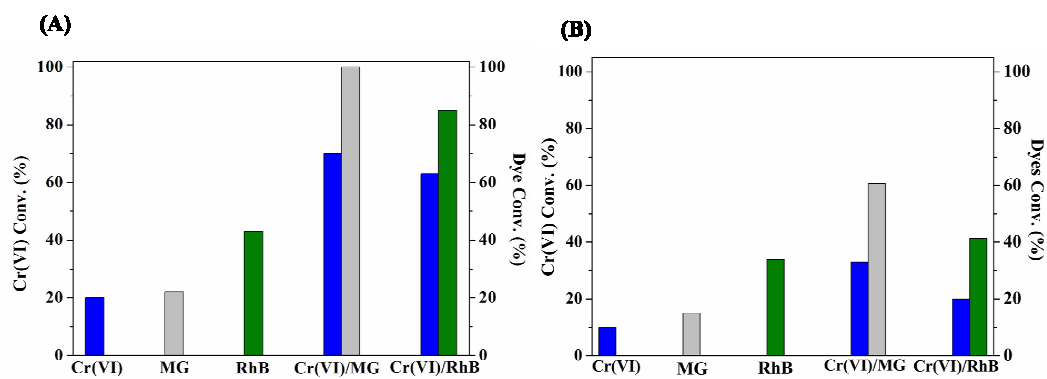
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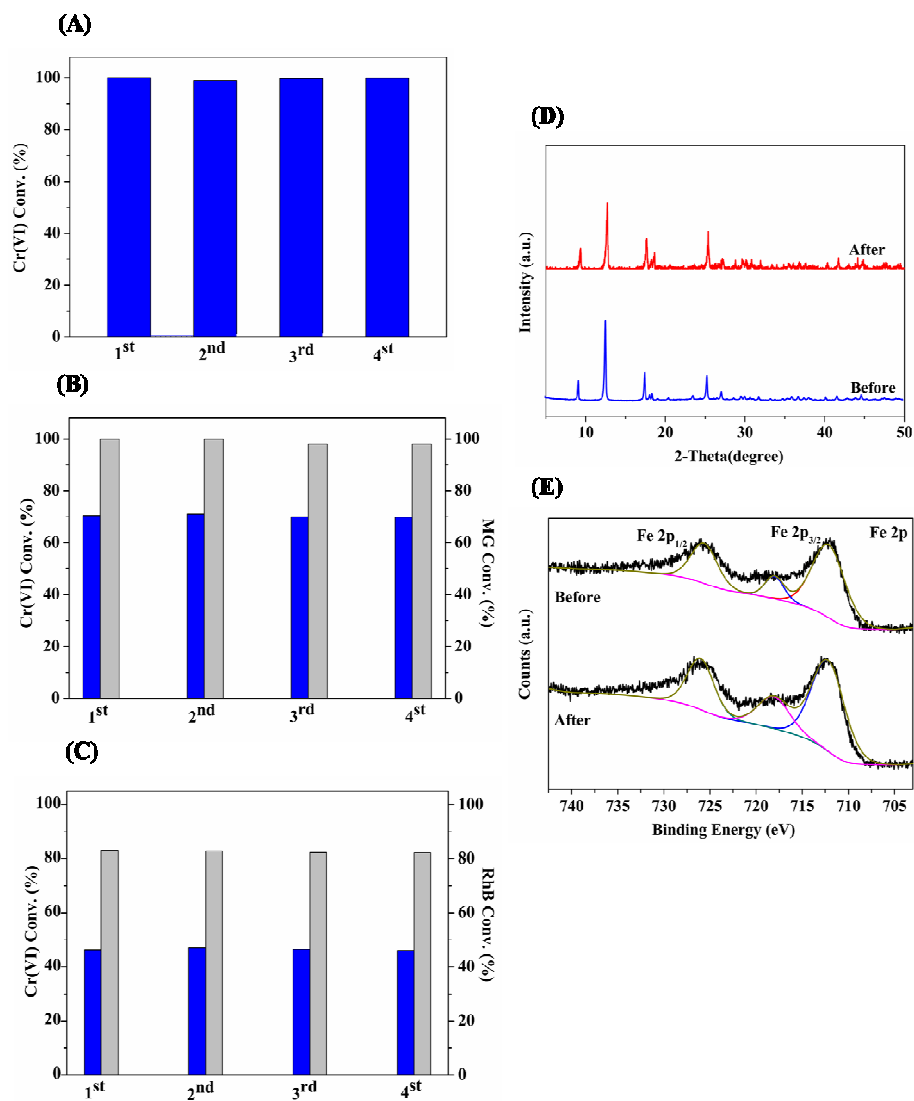
**Figure S1.** Raman spectra of original GO and M53–0.5% RGO.



**Figure S2.** Photograph showing (A) the suspension of M53–10% RGO and D–M53–10% RGO; (B) the bottom of the vials.



**Figure S3.** Photocatalytic activities of (A) M53–0.5% RGO and (B) D–M53–0.5% RGO for the simultaneous photocatalytic reduction of Cr(VI) and degradation of dyes. Reaction conditions: 40 mg of photocatalyst, 40 mL of 20 mg·L<sup>-1</sup> Cr(VI)/dye, air atmosphere, pH 7.



**Figure S4.** Reuse of M53–0.5% RGO for the (A) photocatalytic reduction of Cr(VI); (B,C) simultaneous photocatalytic reduction of Cr(VI) and degradation of dyes for four successive cycles, and (D) XRD patterns, (E) XPS spectra of M53–0.5% RGO before and after the catalytic reaction.

**Table S1.** The concentration of Fe(III) during the reaction. Reaction conditions: 40 mg of M53–0.5% RGO, 40 mL of 20 mg·L<sup>-1</sup> Cr(VI), 5 mg of ammonium oxalate, air atmosphere, pH 4.

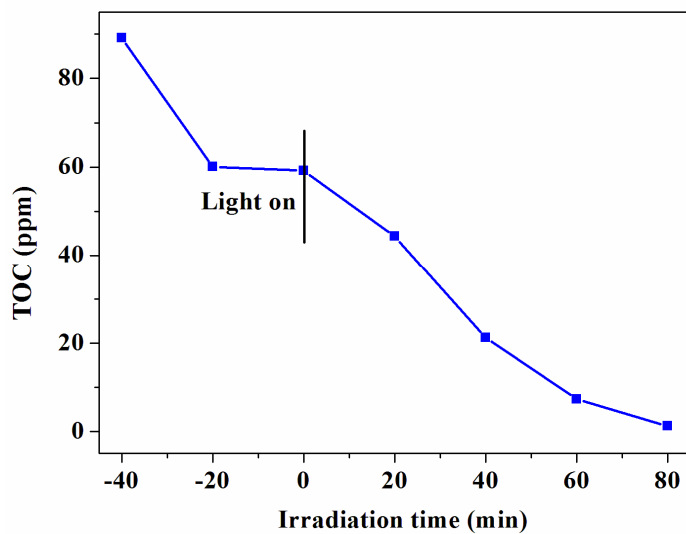
Irradiation time (min)	Fe(III) concentration (ppm)
40 (Dark adsorption)	2.145
40	1.982
80	2.074

**Table S2.** The concentration of Fe(III) during the reaction. Reaction conditions: 40 mg of M53–0.5% RGO, 40 mL of 20 mg·L<sup>-1</sup> Cr(VI)/MG, air atmosphere, pH 7.

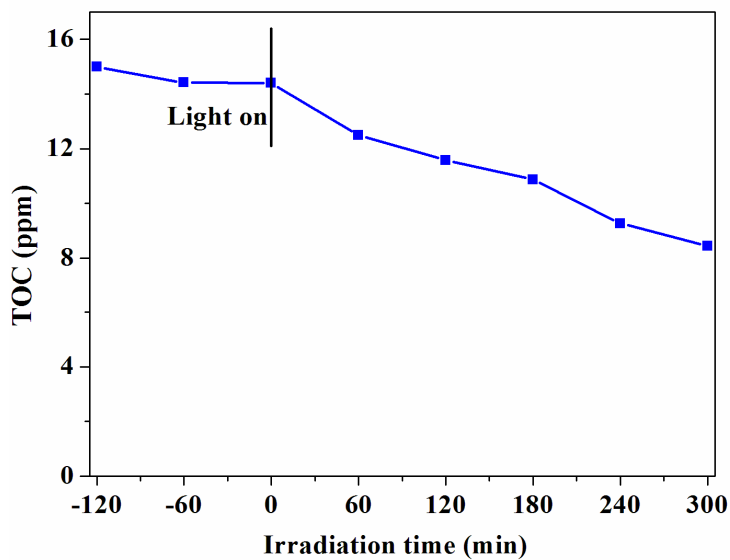
Irradiation time (min)	Fe(III) concentration (ppm)
40 (Dark adsorption)	0.303
150	0.315
300	0.293

**Table S3.** The concentration of Fe(III) during the reaction. Reaction conditions: 40 mg of M53–0.5% RGO, 40 mL of 20 mg·L<sup>-1</sup> Cr(VI)/RhB, air atmosphere, pH 7.

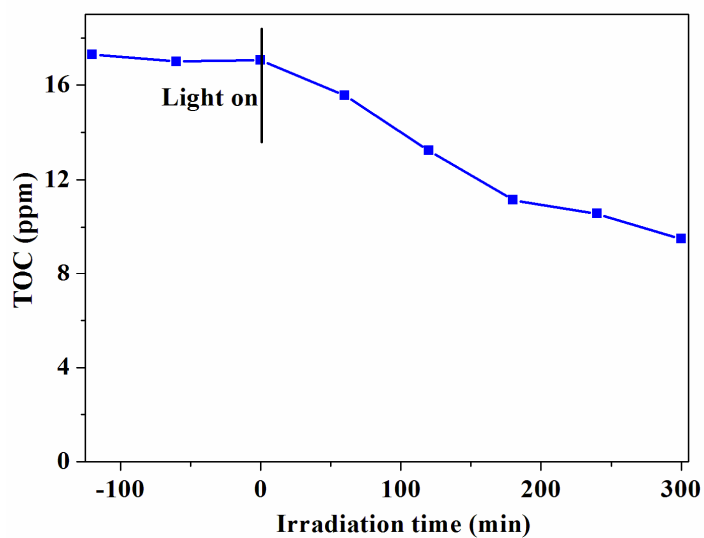
Irradiation time (min)	Fe(III) concentration (ppm)
40 (Dark adsorption)	0.424
150	0.393
300	0.429



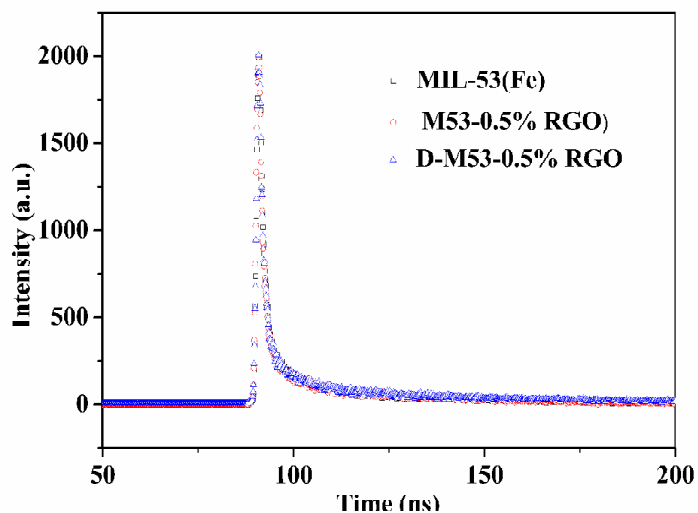
**Figure S5.** Time-course of TOC during irradiation in the presence of ammonium oxalate. Reaction conditions: 40 mg of M53–0.5% RGO, 40 mL of 20 mg·L<sup>-1</sup> Cr(VI), 5 mg of ammonium oxalate, air atmosphere, pH 4.



**Figure S6.** Time-course of TOC during irradiation in the binary systems of Cr(VI)/MG. Reaction conditions: 40 mg of M53–0.5% RGO, 40 mL of 20 mg·L<sup>-1</sup> Cr(VI)/MG, air atmosphere, pH 7.



**Figure S7.** Time-course of TOC during irradiation in the binary systems of Cr(VI)/RhB. Reaction conditions: 40 mg of M53-0.5% RGO, 40 mL of 20 mg·L<sup>-1</sup> Cr(VI)/RhB, air atmosphere, pH 7.



**Figure S8.** The photoluminescent (PL) lifetime of the samples.

**Table S4.** The photoluminescent (PL) lifetime of MIL-53(Fe), M53–0.5% RGO and D–M53–0.5% RGO.

Sample	PL lifetime (ns)		Relative proportion (%)
MIL-53(Fe)	T <sub>1</sub>	1.22	26.39
	T <sub>2</sub>	12.9	31.92
	T <sub>3</sub>	73.3	41.70
M53–0.5% RGO	T <sub>1</sub>	1.23	26.42
	T <sub>2</sub>	14.3	32.10
	T <sub>3</sub>	76.1	41.48
D–M53–0.5% RGO	T <sub>1</sub>	1.24	26.46
	T <sub>2</sub>	14.0	31.86
	T <sub>3</sub>	77.6	41.68

**Table S5.** Active species trapping experiments using different radical scavengers for the photocatalytic degradation of dyes over M53–0.5% RGO (tert-butyl alcohol (TBA) as a scavenger for hydroxyl radicals, ammonium oxalate (AO) as a scavenger for photogenerated holes).

Pollutants	MG	MG/Cr(VI)	RhB	RhB /Cr(VI)	Radical scavenger
Dye	22.2	100.0	43.0	83.1	None
removal	22.0	98.1	40.1	61.7	TBA
(%)	4.3	38.5	12.8	13.2	AO